collected from these areas could be a good source of salt and lodging-tolerant materials. The observations made during the expedition, revealed that chickpea is variable in traits, such as seed-coat color, seed shape, and size. It confirms the statement that chickpeas in Pakistan are highly variable in traits like seed-coat color, shape, and size (van der Maesen 1973).

The material was threshed and processed at the Plant Genetic Resources Laboratory at the National Agricultural Research Centre (NARC), Islamabad, and was divided into two parts. One part was supplied to ICARDA, Syria and the other part retained in the National Genebank at NARC for conservation and utilization.

After the outbreak of the aschochyta blight epidemic during 1980/81, the area of chickpea cultivation in Pakistan decreased substantially. Because of this hazard, the farmers now prefer to grow crops other than chickpea. In Sind, where irrigational facilities are available, banana orchards have replaced the chickpea fields. In Punjab, the improved varieties of chickpea, such as C 44, CM 72, and AUG 480, are replacing the primitive cultivars. The availability of remunerative wheat varieties, e.g., Sind 81, Tandojam 81, Pak 91, and Punjab 81 have also posed a threat to the indigenous chickpea varieties.

References

Hawkes, J.G. 1980. Crop Genetic Resources Field Collection Manual. International Board for Plant Genetic Resources (IBPGR) and European Association for Research on Plant Breeding (EUCARPIA). 37 pp.

van der Maesen, L.J.G. 1973. Chickpea distribution of variability. Pages 30-40 *in* Survey of Crop Genetic Resources in their Center of Diversity (Frankel, O.H., ed.). Food and Agricultural Organization of the United National and the International Biological Programme.

Collection of Pulses Germplasm in Bangladesh, with Emphasis on Chickpea

R.P.S. Pundir[1] and **M.B.H. Sikder**[2] (1. ICRISAT; 2. Bangladesh Agricultural Research Institute, Joydebpur, Bangladesh)

Chickpea is the third major pulse crop of Bangladesh after grass pea (*Lathyrus sativus* L.) and lentil (*Lens culinaris* Medic). During 1979, a total of 32 chickpea germplasm samples were collected in Bangladesh and these were brought to the ICRISAT gene bank (van der Maesen 1979). This number, however, was scanty considering the area under the crop in Bangladesh. The area under this crop is gradually declining: 70000 ha in 1972; 57000 ha in 1978; and 52000 ha in 1985 (FAO 1972-85). This decline is partly due to increase in area under wheat. To salvage more germplasm samples and to explore areas that were not earlier collected, an expedition was launched from 20 Mar 1985 to 11 Apr 1985 in the western half of Bangladesh comprising 9 out of the 20 districts that make up the country. The route followed is given in Figure 1. This mission was carried out in collabora-

Table 1. List of germplasm samples collected in Bangladesh, March-April 1985.

Common name	Scientific name	Number of samples
Chickpea	*Cicer arietinum*	134
Lentil	*Lens culinaris* L.	82
Grasspea	*Lathyrus sativus* L.	44
Black gram	*Vigna mungo* (L.) Hepper	10
Fieldpea	*Pisum sativum* L.	10
Pigeonpea	*Cajanus cajan* (L.) Millsp.	7
Green gram	*Vigna radiata* (L.) Wilczek	2
Linseed	*Linum usitatissimum* L.	2
Wheat	*Triticum aestivum* L.	2
Barley	*Hordeum vulgare* L.	1
Unidentified pulse		1
Total		295

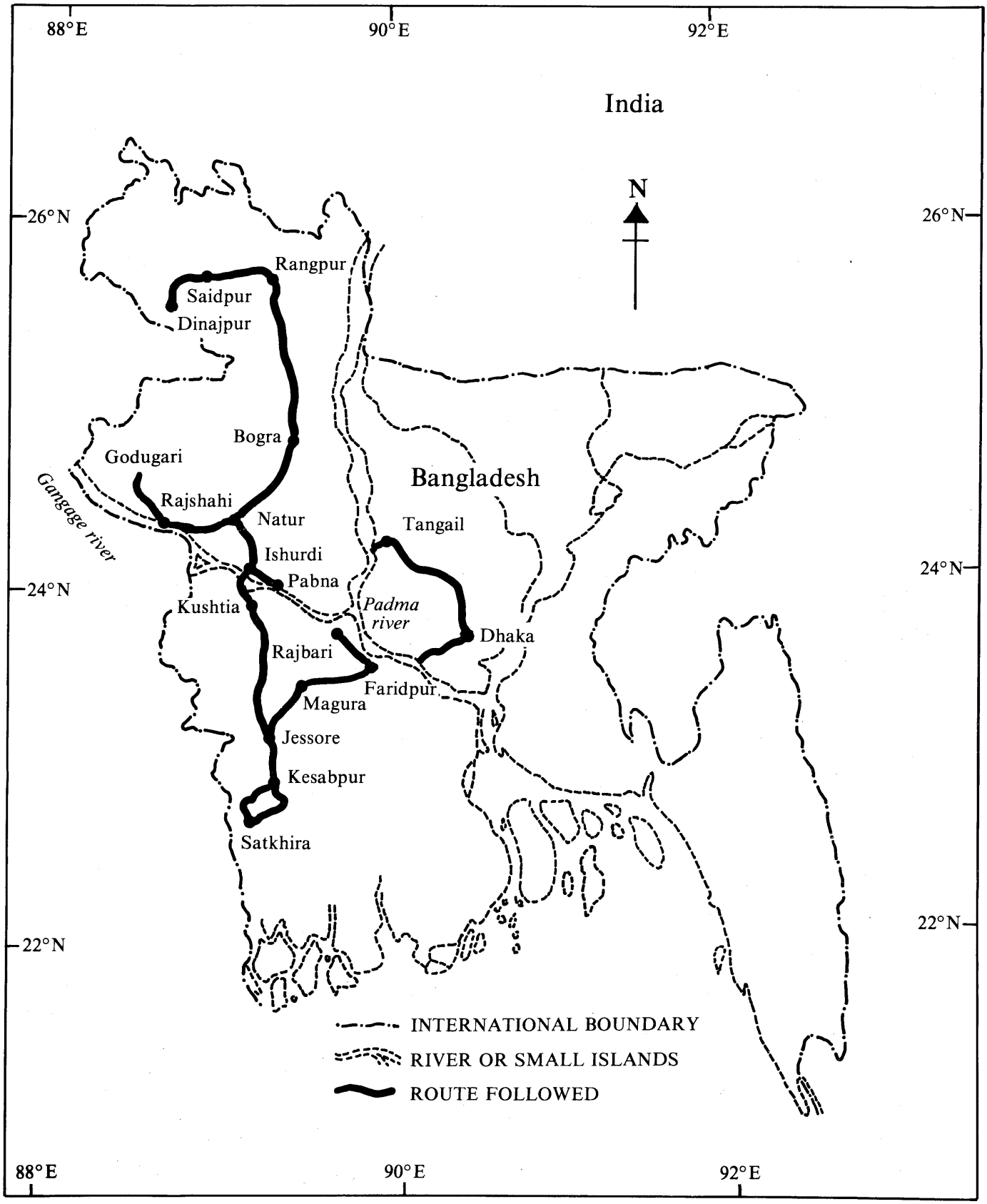

Figure 1. Map showing road route followed by the pulses germplasm collection mission in Bangladesh, 20 Mar 1985 to 11 Apr 1985.

tion with Bangladesh Agricultural Research Institute (BARI), Joydebpur.

The mission was organized primarily for the collection of chickpeas but seeds of other crops, in which BARI had interest, were also collected. A total of 295 samples including 134 of chickpea were collected (Table 1). All the seed samples were deposited with the gene bank of BARI and only the chickpea and pigeonpea seeds were shared with ICRISAT.

We observed good growth of chickpea in majority of the fields (Fig. 2) and these were typical desi types excepting three fields in which desi-kabuli intermediate type chickpeas were grown. The variation for seed size, which was measured as 100-seed mass was 8.6-14.1 g with a mean of 10.8.

In Bangladesh, chickpea is grown in winter (from November to March). Bangladesh lies between 21°N to 27°N latitude and 88°E to 92°5'E longitude, and a majority of the area lies at an altitude of 40-110 m. This provides a moderate winter from December to February and subsequently the temperature starts rising. Soils are alluvial and therefore conserve moisture for a longer time. These situations effect a chickpea crop duration of about 125 days in Bangladesh.

Chickpea is mainly grown as a sole crop but may be intercropped or mixed with crops such as wheat, barley, field mustard (*Brassica campestris* (L.) var. sarson), linseed, sugarcane, and watermelon. The crop is usually cultivated with a moderate level of field preparations after the harvest of rice. However, good crops under rice-chickpea relay cropping were also seen.

During the exploration, we noticed that the chickpea crop was almost free from pod borer. Gray mold disease was seen in some fields. This disease became serious when the crop had excessive vegetative growth. Damage due to fusarium wilt or dry root rot was not seen.

The chickpea and pigeonpea samples collected in this mission are maintained in the ICRISAT gene bank and are available for research use. They are being characterized for morphoagronomic traits and evaluated against stress factors for further utilization.

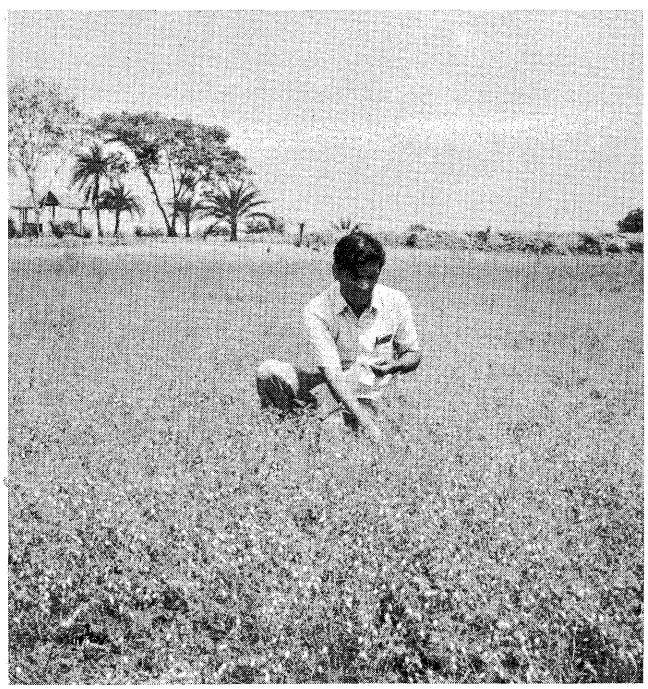

Figure 2. A good chickpea crop growing in Bangladesh.

References

FAO (Food and Agriculture Orginization of the United Nations). Production Year Books. 1972-85. 00100 Rome, Italy:FAO.

van der Maesen, L.J.G. 1979. Pulse crop collection in Bangladesh. Progress Report, Genetic Resources-5. Patancheru, A.P. 502 324, India:ICRISAT. (Limited distribution).

Pathology

Evaluation of Foliar Fungicides for Control of Chickpea Ascochyta Blight

Mohammad Bashir[1], B. Ahmed Malik[1], and **M. Bashir Ilyas[2]** (1. National Agricultural Research Centre, Islamabad, Pakistan; 2. University of Agriculture, Faisalabad, Pakistan)

Some fungicides have been reported to be effective in controlling ascochyta blight of chickpea (Bashir and Ilyas 1986; Nene 1982). In order to screen out the most effective foliar fungicide, a field trial was conducted during 1985-86 at the National Agricultural Research Centre, Islamabad using a blight-susceptible cultivar C-727. The crop was grown in plots of 4 m x 2.1 m, with three replications for each treatment in completely randomized-block design, and was artificially inoculated by spraying spore suspension of *Ascochyta rabiei* (50000 spores mL^{-1}). There were three inoculations at 15-day intervals, starting at flowering. To help blight development, humidity was maintained in the field by spraying water. Fungicides were sprayed at 10-12 days interval at the rate of